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Cosmology from Newton-Chern-Simons gravity. (English) Zbl 1472.85004
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Summary: We study a five-dimensional non-relativistic gravity theory whose action is composed of a gravitational sector and a sector of matter where the gravitational sector is given by the so called Newton-Chern-Simons gravity and where the matter sector is described by a perfect fluid. At time to do cosmology, the obtained field equations shows a close analogy with the projectable version of the Hořava-Lifshitz theory in $(3 + 1)$ -dimensions. Solutions and their asymptotic limits are found. In particular a phantom solution with a future singularity reminiscent of a Little Big Rip future singularity is obtained.

MSC:

85A40 Astrophysical cosmology

83C55 Macroscopic interaction of the gravitational field with matter (hydrodynamics, etc.)

76E20 Stability and instability of geophysical and astrophysical flows

83C75 Space-time singularities, cosmic censorship, etc.

Keywords:

[Little Big Rip future singularity](#)

Full Text: [DOI](#) [arXiv](#)

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